



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/995,677	11/29/2001	Masaki Nakamichi	Q66518	1015

7590

06/03/2003

SUGHRUE, MION, ZINN, MACPEAK & SEAS
2100 Pennsylvania Avenue, N.W.
Washington, DC 20037

EXAMINER

OLSEN, KAJ K

ART UNIT

PAPER NUMBER

1753

DATE MAILED: 06/03/2003

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/995,677

Applicant(s)

NAKAMICHI ET AL.

Examiner

Kaj Olsen

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 13 March 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1, 3-5 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jung '953 in view of Sagisaki et al (USP 5,709,198). Sagisaki is being cited and relied on for the first time with this office action. Its use was necessitated by the applicant's amendment of 3-13-2003.
3. With respect to the claims, Jung discloses a fault diagnosis apparatus or method comprising an O2 sensor for detecting a concentration of oxygen contained in the exhaust of an internal combustion engine (col. 1, lines 11-16) and a feedback control portion for controlling a quantity of fuel supplied to the internal combustion engine via feedback control according to an output signal of the O2 sensor (col. 1, lines 34-36). Jung also discloses structure for a judgment portion where it is determined whether or not the sensor is in an activated or an inactivated state (col. 3, lines 28-34). This would read on the claim language requiring a state judging portion for judging whether the O2 sensor is in an active state or in an inactive state on the basis of a voltage of the output signal of the O2 sensor. Jung further discloses a fault diagnosing portion where the fuel injected is to be increased and the O2 sensor signal is monitored again to determine if the signal has any fault associated with it (col. 3, line 35 through col. 4, line 6). This fault diagnosis occurs after the sensor has been determined to be inactive (col. 3, lines 31 and 32). Jung does not disclose a fault diagnosis that is performed when fuel is not injected. Sagisaka teaches in an

Art Unit: 1753

alternate sensor fault diagnosis routine that one means for diagnosis of a fault is to monitor the internal resistance of the O2 sensor, which provides the advantage of not only determining the existence of a fault, but also determining precisely what kind of fault the sensor is undergoing (col. 9, line 17 through col. 10, line 63). This monitoring of the internal resistance does require that fuel not be injected during the diagnosis (col. 9, lines 37-40). It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of Sagisaka for the apparatus and method of Jung in order to determining not only the existence of a fault, but also the precise kind of fault in question.

4. With respect to claims 3 and 7, Jung activates the fault diagnosis every time the sensor is determined to be inactive (see fig. 2).

5. With respect to claims 4 and 8, see Jung, col. 4, lines 5 and 6.

6. With respect to claim 9, both Jung and Sagisaka are drawn to oxygen sensors that monitor the concentration of oxygen in an internal combustion engine.

7. Claims 2, 6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jung and Sagisaka as applied to claims 1 and 5 above, and further in view of Nakamichi '284.

8. Jung and Sagisaka disclose all the limitations of claims 2 and 6, but does not explicitly identify a fault diagnosis portion or a fault diagnosing step including an input resistance changing portion. Nakamichi, in an alternative fault diagnosis apparatus, teaches a couple of different fault diagnosing portions. One portion (termed the "first decision means") determines a fault based on forcibly changing the fuel supplied to the engine and monitoring the O2 sensor response (like the fault diagnosing portion of Jung). The other portion (termed the "second decision means") determines a fault based on changing an input resistance so as to cause a

Art Unit: 1753

change in the level of the output signal of said O2 sensor (col. 2, lines 2-10 and lines 34-49).

Nakamichi further indicates that the second decision means is better at identifying abnormalities than the first decision means because it can clearly identify faults such as ground-faults or wire bearing (col. 2, lines 6-10 and lines 29-33). It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of Nakamichi for the apparatus or method of Jung and Sagisaka in order to better identify abnormalities in the O2 sensor during the fault diagnosis operation.

9. With respect to new claim 10, see col. 5, lines 24-29.

Response to Arguments

10. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection utilizing Sagisaka.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

Art Unit: 1753

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaj Olsen whose telephone number is (703) 305-0506. The examiner can normally be reached on Monday through Thursday from 7:00 AM-4:30 PM. The examiner can also be reached on alternate Fridays.

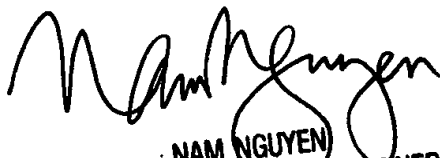
If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Mr. Nam Nguyen, can be reached at (703) 308-3322.

When filing a fax in Group 1700, please indicate in the header "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communications with the PTO that are not for entry into the file of this application. This will expedite processing of your papers. The fax number for regular communications is (703) 305-3599 and the fax number for after-final communications is (703) 305-5408.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist, whose telephone number is (703) 308-0661.



Kaj K. Olsen
Patent Examiner
AU 1753
5/29/2003



NAM NGUYEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700